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A Member of The IT Group

May 6, 2002

Tim Gouger
USACE
P.O. Box 13287
Building 527
Offut AFB
Offut, NE 68113

RE: Groundwater Monitoring Report for First Quarter 2002
Duell and Gardner Landfill Site, Dalton Township, Muskegon County, Michigan

Dear Mr. Gouger:

On behalf of United States Environmental Protection Agency (USEPA) Region V and the U.S. Army Corp of Engineers (USACE), IT Corporation submits the Groundwater Monitoring Report (GMR) for the first quarter of 2002. **Figure 1** is a map showing the site location. **Figure 2** is a site map that shows the location of groundwater monitoring wells. Water level measurements from site monitoring wells were gauged on March 27, 2002. Groundwater samples were collected from the corrective action monitoring wells on April 3 and April 4, 2002.

In compliance with the Duell & Gardner Landfill Monitoring Plan (LMP) dated March 4, 2002, this report includes:

- Field data sheets (**Appendix A**);
- Laboratory reports with a chain of custody (**Appendix B**);
- A groundwater contour map including static water level elevations (**Figure 3**).

A copy of the laboratory data is being transmitted electronically to the MDEQ, as requested.

Sample Identification

Sample identification numbers presented in the laboratory results correspond to monitoring well identification numbers. One duplicate sample was collected from monitoring well MW-14S and labeled MW-14s duplicate.

EPA Region 5 Records Ctr.



268251

Flow Direction Review

Groundwater elevations and flow patterns for the March 27, 2002 gauging event were compared to the previous flow patterns. **Table 1** presents a summary of the groundwater gauging data for the March 27, 2002. **Figure 3** shows a contour map of the static water elevations for March 27, 2002 and the general direction of groundwater flow. The March 2002 data indicates that the groundwater flow at the site is in a southeasterly direction, which is consistent with historical directions of groundwater flow for the D&G Landfill.

Water Quality Summary

Laboratory results for the April 2002 groundwater sampling event were compared to MDEQ Part 201 Drinking Water Criteria and the Part 22 Standard. **Table 2** provides a summary of the analytes detected above laboratory detection limits for groundwater sampling events in October 2001 and April 2002. Based on a review of the detected analytes for the April 2002 groundwater sampling events, the following analytes concentrations exceed regulatory criteria:

<u>Analyte</u>	<u>Well Number</u>	<u>Concentration (ug/L)</u>
<i>Part 201 Criteria</i>		
• Carbon Tetrachloride (5 ug/L)	RW-1	25
	MW-25S	35
• N,N-Dimethylaniline (16 ug/L)	MW-14D	19
<i>Part 22 Standard</i>		
• Chloroform (20 ug/L)	RW-1 (TW-1)	22

Appendix A contains a copy of the field data sheets for the March 27, 2002 gauging event and the April 2002 groundwater sampling event. **Appendix B** contains a hard copy of the laboratory analytical data for the April 2002 groundwater sampling event.

If you have any questions or comments regarding this report, please contact me at 734-367-1013.

Sincerely,

IT CORPORATION



Randy Sherman, CPG, CHMM
Project Manager

Appendices

N:\cecg\projects\USACE\DuellGardner\Monitoring 2002\GMR 1ST QRT 2002

TABLES

Table 1
Summary of Well Gauging Details (March 27, 2002)
Duell and Gardner Landfill Site
Dalton Township, Muskegon County, Michigan
units as given

Well Identification	Date Measured	Top of Casing (USGS) (feet)	Ground (USGS) (feet)	Bottom of Screen (feet)	Depth to Bottom (feet)	Depth to Water (feet)	Water Elevation (feet)	Comments
MW-1	3/27/2002	665.40	662.80	654.40		5.27	660.13	
MW-2	3/27/2002	662.10	660.00	650.60		4.65	657.45	
MW-3	3/27/2002	661.70	659.65	650.20		4.39	657.31	
MW-4	3/27/2002	663.10	660.90	651.60			NA	
MW-05S	3/27/2002	670.29	667.50	657.80	12.50	7.77	662.52	
MW-05D	3/27/2002	668.51	667.45	609.35	60.00	5.96	662.55	
MW-06S	3/27/2002	666.19	663.86	654.06			NA	
MW-06D	3/27/2002	664.99	663.76	604.46			NA	
MW-07	3/27/2002	667.36	664.83	654.83		6.46	660.90	
MW-08	3/27/2002	667.23	664.60	654.60	12.30	6.56	660.67	
MW-09	3/27/2002	667.38	665.12	655.12	12.60	7.24	660.14	
MW-10	3/27/2002	667.00	663.50	658.80			NA	Not Located
MW-11R	3/27/2002	666.91	664.24	654.24			NA	Abandoned
MW-11I	3/27/2002	667.20	664.40	624.40			NA	Abandoned
MW-12	3/27/2002	667.14	664.94	654.94	12.35	6.94	660.20	
MW-13	3/27/2002	676.20	673.70	653.70			NA	Abandoned
MW-14S	3/27/2002	670.21	668.01	654.51	15.40	10.59	659.62	
MW-14I	3/27/2002	669.45	667.27	624.77	45.00	9.88	659.57	
MW-14D	3/27/2002	670.95	667.76	602.76	65.20	11.05	659.90	
MW-14E	3/27/2002	670.71	668.18	573.18		8.54	662.17	
MW-15	3/27/2002	666.01	664.70	655.70			NA	Abandoned
MW-16	3/27/2002	663.89	662.06	653.06			NA	Abandoned
MW-17	3/27/2002	662.84	660.66	652.16		4.43	658.41	
MW-18	3/27/2002	663.54	661.31	652.81			NA	Abandoned
MW-18I	3/27/2002	662.25	661.30	617.30			NA	Abandoned
MW-19	3/27/2002	663.42	660.95	650.95		6.31	657.11	
MW-20	3/27/2002	662.06	660.18	651.68		4.50	657.56	
MW-21S	3/27/2002	662.69	660.78	650.78		4.25	658.44	
MW-21D	3/27/2002	663.25	660.91	590.91		5.09	658.16	
MW-22S	3/27/2002	662.13	659.83	649.83		5.77	656.36	
MW-22D	3/27/2002	661.78	659.98	611.58		5.42	656.36	
MW-23S	3/27/2002	661.43	658.75	648.75		4.96	656.47	
MW-23D	3/27/2002	661.61	658.74	609.24		5.52	656.09	
MW-25S	3/27/2002	668.10	666.20	651.70	16.10	8.85	659.25	
MW-25I	3/27/2002	668.21	665.07	620.07	47.00	8.95	659.26	
MW-25D	3/27/2002	667.46	665.86	602.36	66.50	7.78	659.68	
MW-26S	3/27/2002	662.68	661.36	647.76		4.52	658.16	
MW-26I	3/27/2002	662.74	661.21	617.61		4.43	658.31	
MW-26D	3/27/2002	663.35	661.29	593.29		4.38	658.97	
MW-31	3/27/2002	661.61	659.61	651.61	10.40	5.32	656.29	
MW-32	3/27/2002	662.13	660.25	651.25	11.00	5.22	656.91	
MW-33	3/27/2002	664.01	661.55	651.55	12.40	5.79	658.22	
MW-34	3/27/2002	NA	0.00	15.00		5.38		
MW-35	3/27/2002	NA	0.00	15.00		5.51		
MWPZ-1	3/27/2002	NA	0.00			13.15		
MW-11D	3/27/2002	NA	0.00			6.70		
IB	3/27/2002	NA	0.00			8.91		
RW-1	3/27/2002	NA	0.00		40.00	11.24		
RW-2	3/27/2002	NA	0.00		41.30	6.30		
RW-3	3/27/2002	NA	0.00		37.25	5.67		
RW-4	3/27/2002	NA	0.00				NA	Not Located

TABLE 2
DETECTED ANALYTE CONCENTRATIONS COMPARED TO MDEQ CRITERIA
DUELL AND GARDNER LANDFILL

		Carbon Tetrachloride	Tetrachloroethene	N,N-Dimethylaniline	N-Methylaniline	Tetramethyl Urea	N-Ethylaniline
PART 201 CRITERIA		100	5	5	16	NA	NA
PART 22 STANDARD		20	5	5	16	NA	NA
WELL ID	DATE						
RW-1 (TW-1)	10/18/01	2.6	11	ND	ND	ND	6.8
	4/4/2002	22	25.0	ND	ND	ND	17
MW-14I	10/17/2001	ND	ND	ND	13	ND	ND
	4/4/2002	ND	ND	ND	14	ND	NA
MW-14D	10/17/2001	ND	ND	ND	19	120	5.2
	4/4/2002	ND	ND	ND	15	60	NA
MW-25S	10/16/2001	11	110	ND	ND	ND	44
	4/3/2002	6.5	35	1.4	ND	ND	NA
MW-25I	10/16/2001	ND	ND	ND	ND	ND	8.4
	4/4/2002	ND	ND	ND	ND	ND	28
RW-2 (near MW-13)	4/4/2002	ND	ND	ND	ND	ND	17
RW-4 (near MW-14)	10/18/2001	ND	ND	ND	ND	13	ND
	4/4/2002	ND	ND	ND	11	22	ND

Note:

All values in ug/L

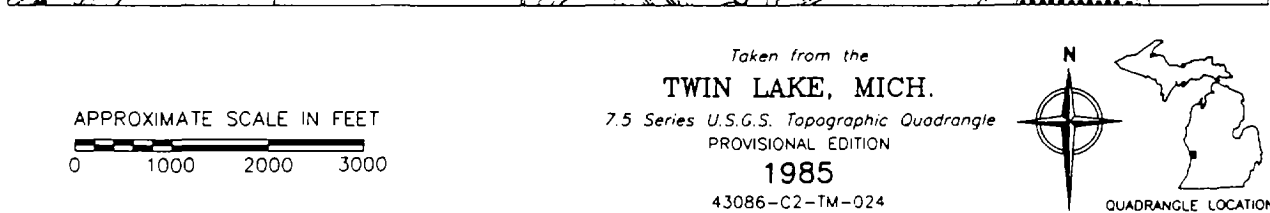
ND = Not Detected

NS = Not Sampled

NA = Not Available

n:\cecg\projects\USACE\DuellGardner\monitoring 2002\DG Groundwater Criteria Summary

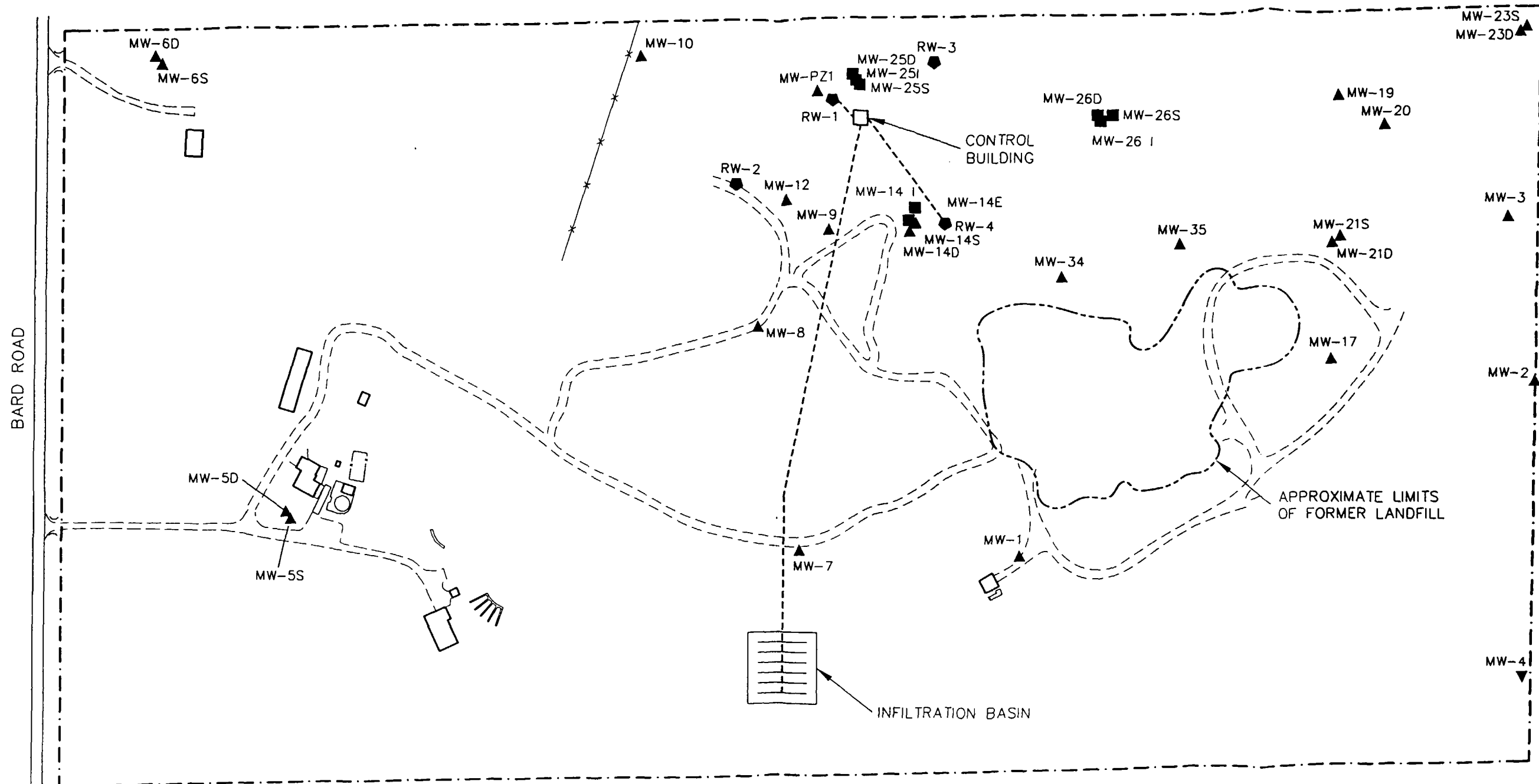
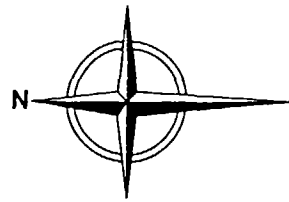
FIGURES



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APP JMA
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SITE LOCATION MAP

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MAP MODIFIED FROM EARTH TECH PDI REPORT,
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LEGEND

- ▲ PHASE I SOIL BORING/MONITORING POINT
- PHASE II SOIL BORING/MONITORING POINT
- ⊗ SOIL BORING/MONITORING POINT (INSTALLED 1996)
- - - SITE BOUNDARY LOCATION
- == UNPAVED ROAD
- x-x- FENCE

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REV DGS
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FIGURE 2
DUELL AND GARDNER LANDFILL
DALTON TOWNSHIP, MICHIGAN

SITE MAP

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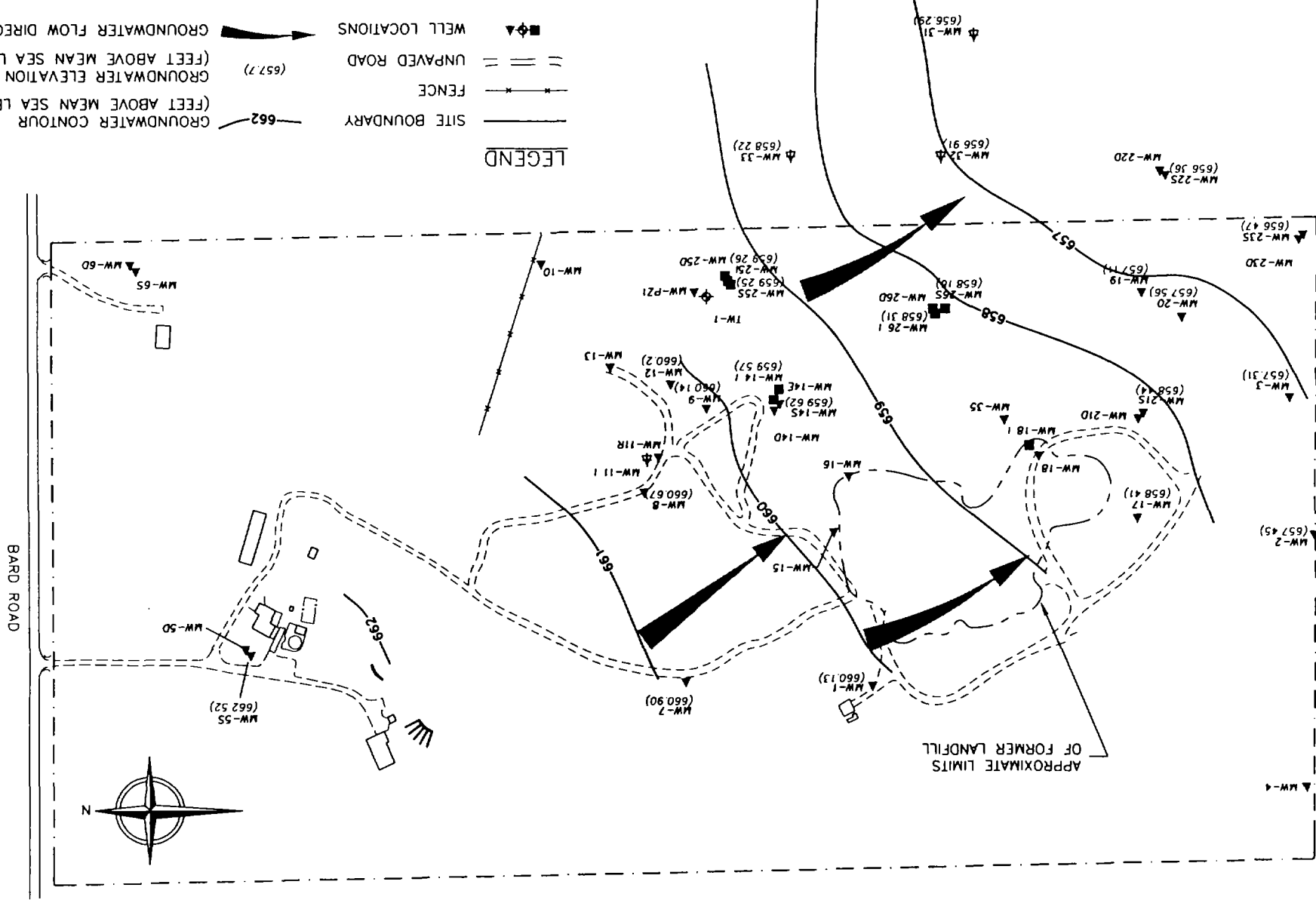
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FIGURE 3
 DUELL AND GARDNER LANDFILL
 DALTON TOWNSHIP, MICHIGAN
 MARCH 27, 2002
 GROUNDWATER GRADIENT MAP

LEGEND

- SITE BOUNDARY
- - - UNPAVED ROAD
- x - FENCE
- ▲ WELL LOCATIONS
- 662 — GROUNDWATER CONTOUR (FEET ABOVE MEAN SEA LEVEL)
- 657 — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION



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